

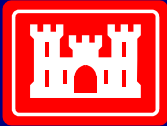
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Managing HTRW Data at NAB

by

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Abstract

This presentation discusses the critical components in managing HTRW data successfully and efficiently. One key to the success is to select the appropriate computer application(s). Since a perfect application is non-existent to perform all tasks simultaneously, a combination of one or two powerful tools may be needed. For comparison, computer application such as ArcView/GIS, GIS/Key, EQUIS, and ERIS are evaluated. Summary of the findings and results are presented.



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Introduction

- **Managing data is becoming an important and inevitable task for HTRW projects**
- **With the proper tools, complex environmental problems can be easily solved**
- **The buzz words in the environmental industry are**
 - **Cost saving**
 - **Speed (i.e., quick turnaround)**
 - **Quality**
- **As the industry grows, data users are becoming smarter and more sophisticated. Electronic data are in demand; thus choosing the appropriate computer application(s) to manage them is one key to a project success**



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Environmental Data Types

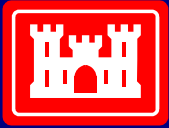
- **Chemical, Toxicological, and Ecological**
- **Geological and Hydrogeological**
- **Spatial Data**
- **Compliance Information**
- **Health and Safety Information**
- **Project Management Schedule**
- **Census**



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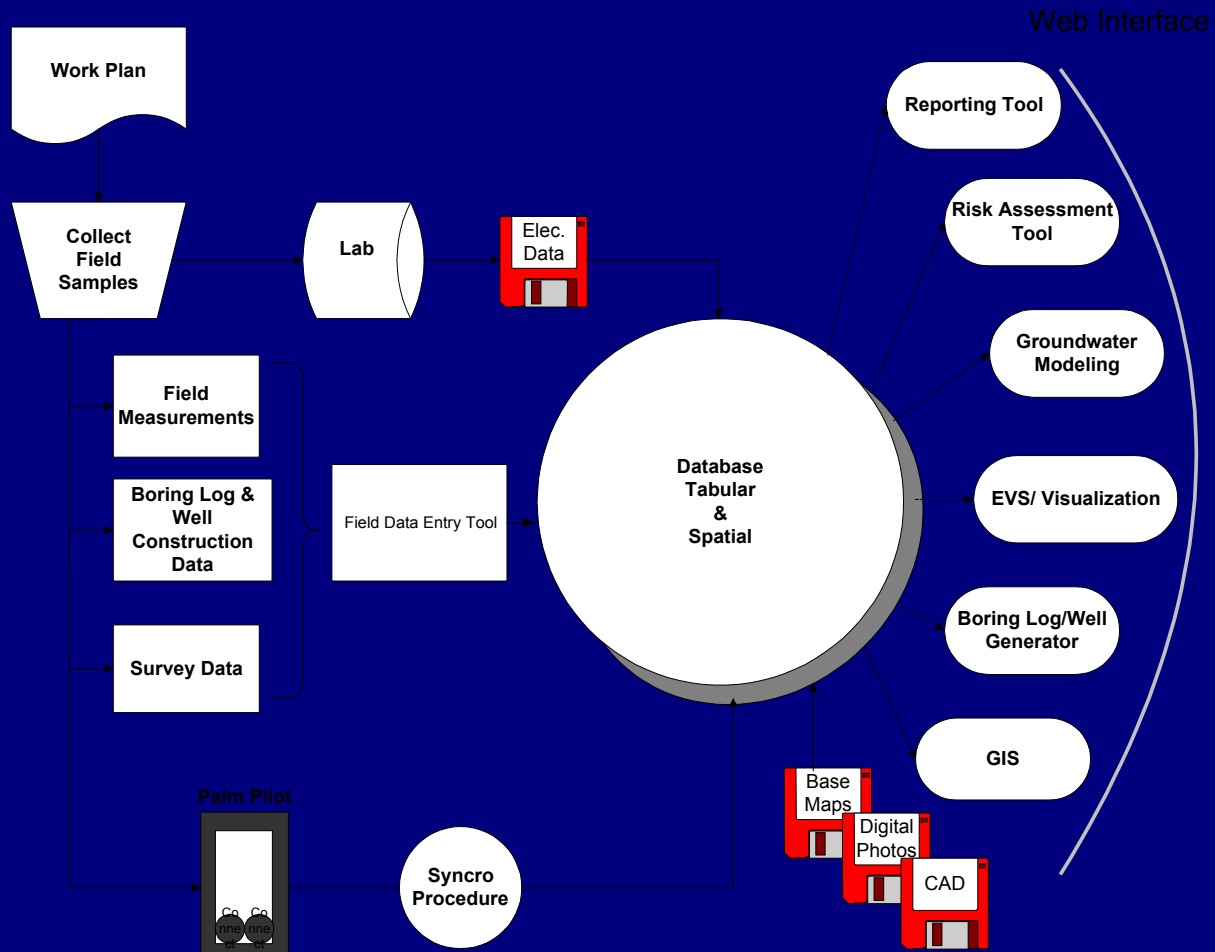
General Approach to HTRW Data Management

- **Planning Phase**
- **Data Collection and Input**
- **Data Review**
- **Central Data Storage**
- **Data Output**
 - **Reports**
 - **Data Analysis**
 - **Exports**



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Data Management System Architecture





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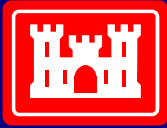
Case Studies

AWI, VA

Atlantic Wood Incorporated (AWI) Project

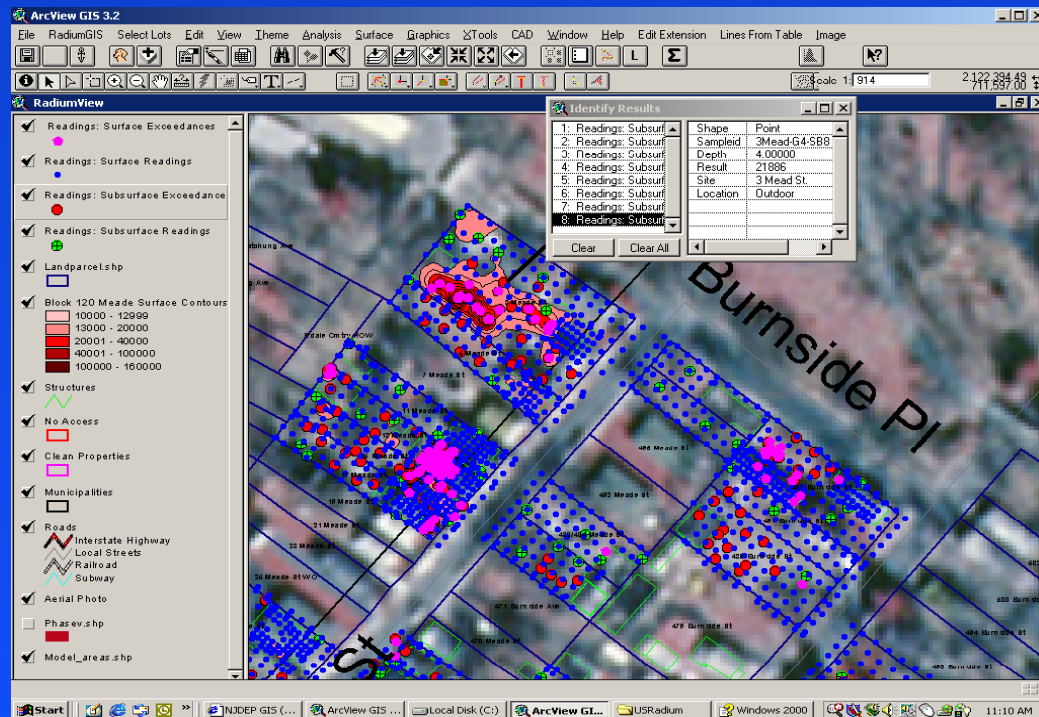
- **The Central Database Repository was EQuis**
 - Equis is ideal
 - Adaptable: Can be customized for Specific Applications
 - Provides a limited Toolset for Data Entry
- **Desktop Geographic Information Systems (Arcview/GIS)**
 - Links Tabular and Spatial Data
 - Useful for:
 - Complex desktop data queries
 - All Types of Spatial Analysis
 - Regulatory Agency Meetings
 - Figure Generation

Case Studies (Continued)



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ArcView GIS Used to Support Decision Making





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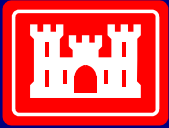
Case Studies

AWI (Continued)

- **3D Data Visualization**

Using a Suite of Software including EVS for:

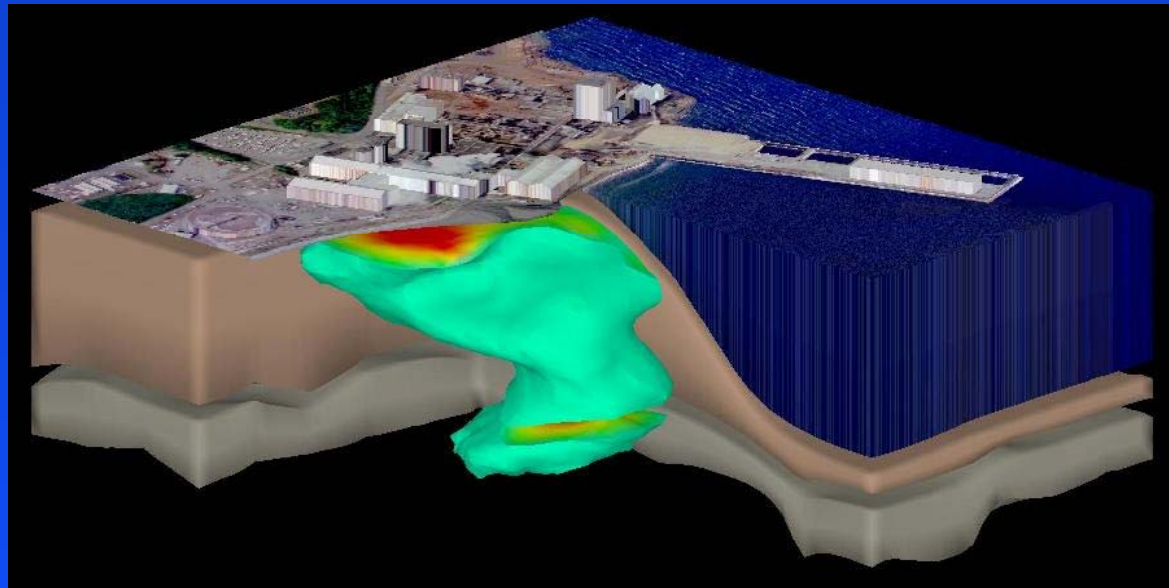
- **Analysis - Transform Masses of Data into Useful Information**
- **Communication - Present Complex Issues in a Format that is Much Easier to Understand**



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Case Studies (continued)

**Analysis: Integration of data from
multiple sources**





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Case Studies

AWI (continued)

- **Communication - Export Multiple Formats**
 - **Images**
 - **Useful in Reports**
 - **Virtual Reality Files**
 - **3D Zoom, Translate, Rotate Capabilities**
 - **Animations**



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Case Studies

AWI (continued)

- **Chemical Data Validation by URS Woodward-Clyde**
 - EDD was in EQuis format and converted into URS's Database (Microsoft Access- based)
 - Data were processed electronically
 - Data were used for:
 - Data Validation
 - Human Health Risk assessment
 - GIS, maps
 - Reports and trend analysis
 - Regulatory compliance

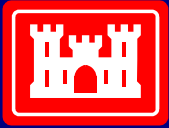


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Case Studies

AWI (continued)

- **Lesson Learned**
 - Need a better coordination between the Laboratory, Data Validator, and Prime Contractor
 - Settle on EDD format at the earliest stage of the project
 - Identify Out of Scope tasks and ensure that budget schedule is adjusted accordingly

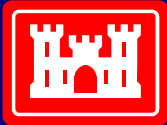


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Case Studies

Spring Valley, DC

- **The Central Data Repository is a Microsoft Access-based database**
- **Because of the complexity of the project and high volume of samples being collected (at more than 1400 residences), the system is powerful to:**
 - **Stores and Retrieve All Collected Data since Day 1**
 - **Generate/Store more than 1300 Figures and Maps (Save Maps as an Object Database to free space in ArcView)**
 - **Help Project Team in Tracking Sample and Right of Entry (ROE) for all Sampling Locations**
 - **Query Data timely at Public Meeting and RAB sessions**
 - **Be able to Answer Complex Questions by Data Users & Regulators**



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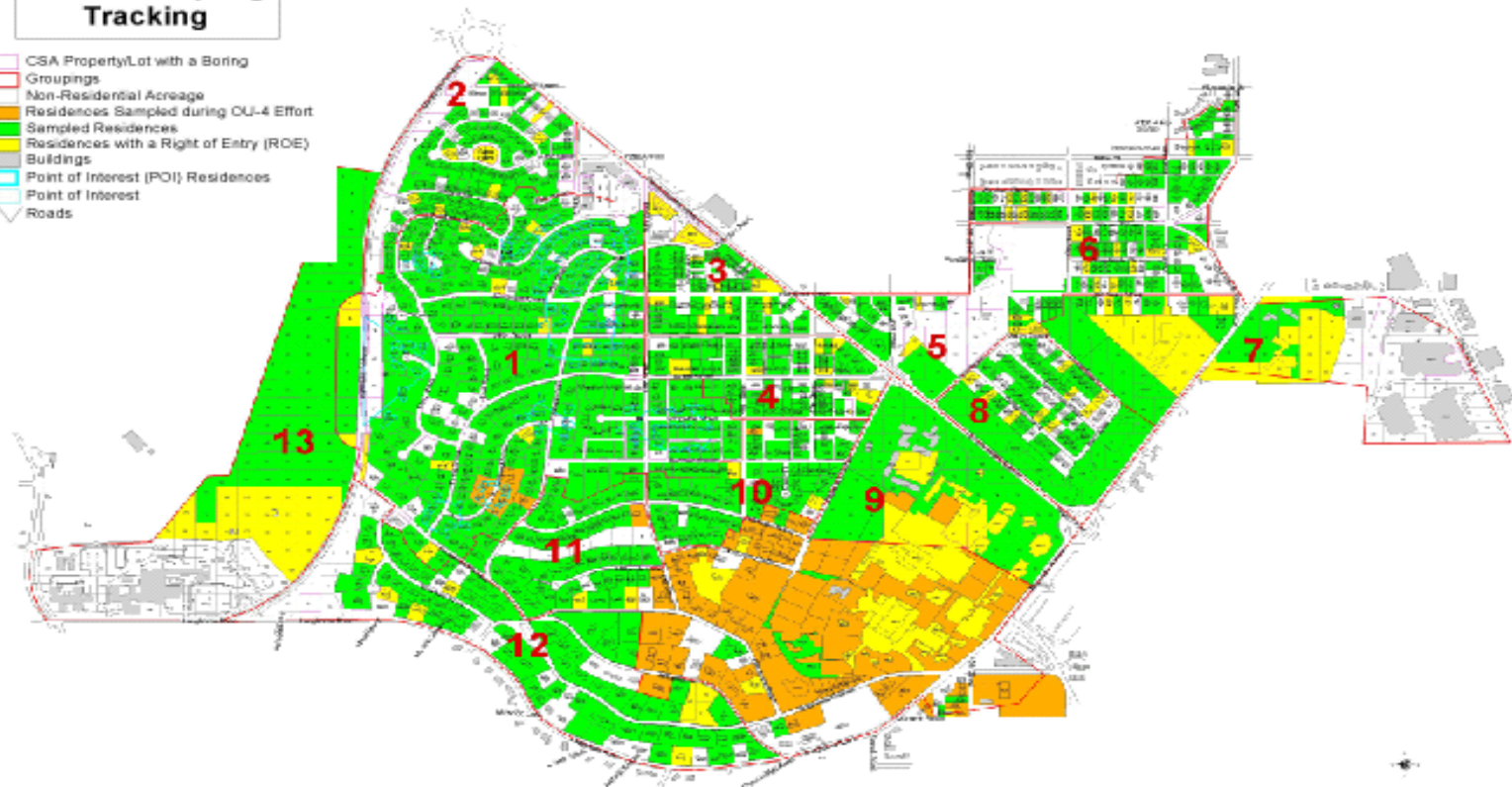
(Courtesy of Parsons)

Case Studies

Spring Valley, DC

ROE & Sampling Tracking

- CSA Property/Lot with a Boring
- Groupings
- Non-Residential Acreage
- Residences Sampled during OU-4 Effort
- Sampled Residences
- Residences with a Right of Entry (ROE)
- Buildings
- Point of Interest (POI): Residences
- Point of Interest
- Roads





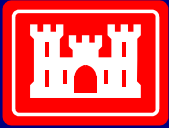
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Case Studies

Spring Valley, DC

Lesson Learned at Spring Valley

- **Know the goals of the project before working on the data**
- **Spend some time analyzing data structure**
- **Ensure Correctness of GIS Data Projection**
- **Maintain Good Housekeeping of Metadata**
- **Store Maps in a Database to Free Project's Space**
- **Validate the Data Prior to Submission**



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Case Studies

Kingman Island, DC

Kingman Island Project used GIS/Key System

- The system has:
 - Well Defined EDD Structures (ERPMIS-based)
 - FoxPro Back-End Database
 - Mapping and drawing by CAD
 - Recently added ESRI ArcView Interface to Enhance Spatial Data Analysis Capability
 - Data Validation Capabilities (except calibration info)
 - Up to 25% saving on data validation cost
 - Met project short span schedule due to its efficiency
 - Export Tools to generate Reports



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Case Studies

Kingman Island, DC

Lesson Learned (Kingman In-House Project)

- **Ensure that budget schedule reflects the effort required**
- **Know Laboratory's capabilities prior to contract awarding**
- **Acquire adequate training for the system**



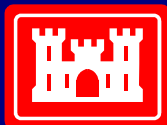
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Case Studies

FNOD, VA

Former Nansmond Ordnance Depot Project, VA

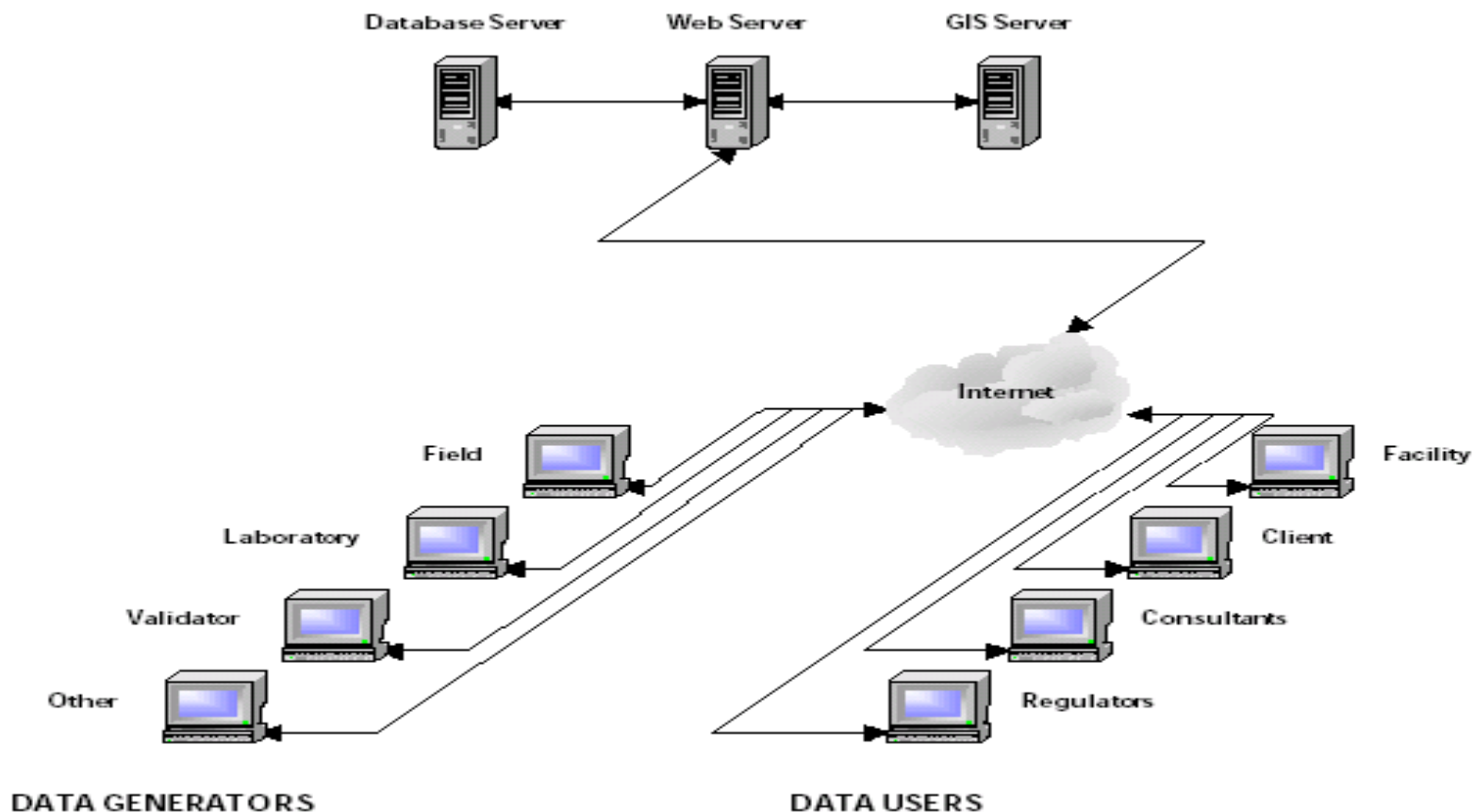
- **Data Resides on a Web Enabled Database System Managed by Synectics**
 - Internet data system consisting of a SQL compliant database engine, loading/screening tool, query interface, and reporting interface
- **Automatic Data Flagging**
 - Ninety percent of the data was electronically qualified for evaluation of environmental chemistry results
- **Web Enabled GIS**
 - ESRI ArcView internet map server
- **Web Enabled Project Management**
 - Used to assist project management and tracking tools and reports

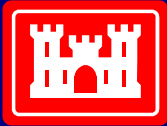


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Case Studies FNOD, VA

- Internet-Based Data Management Overview



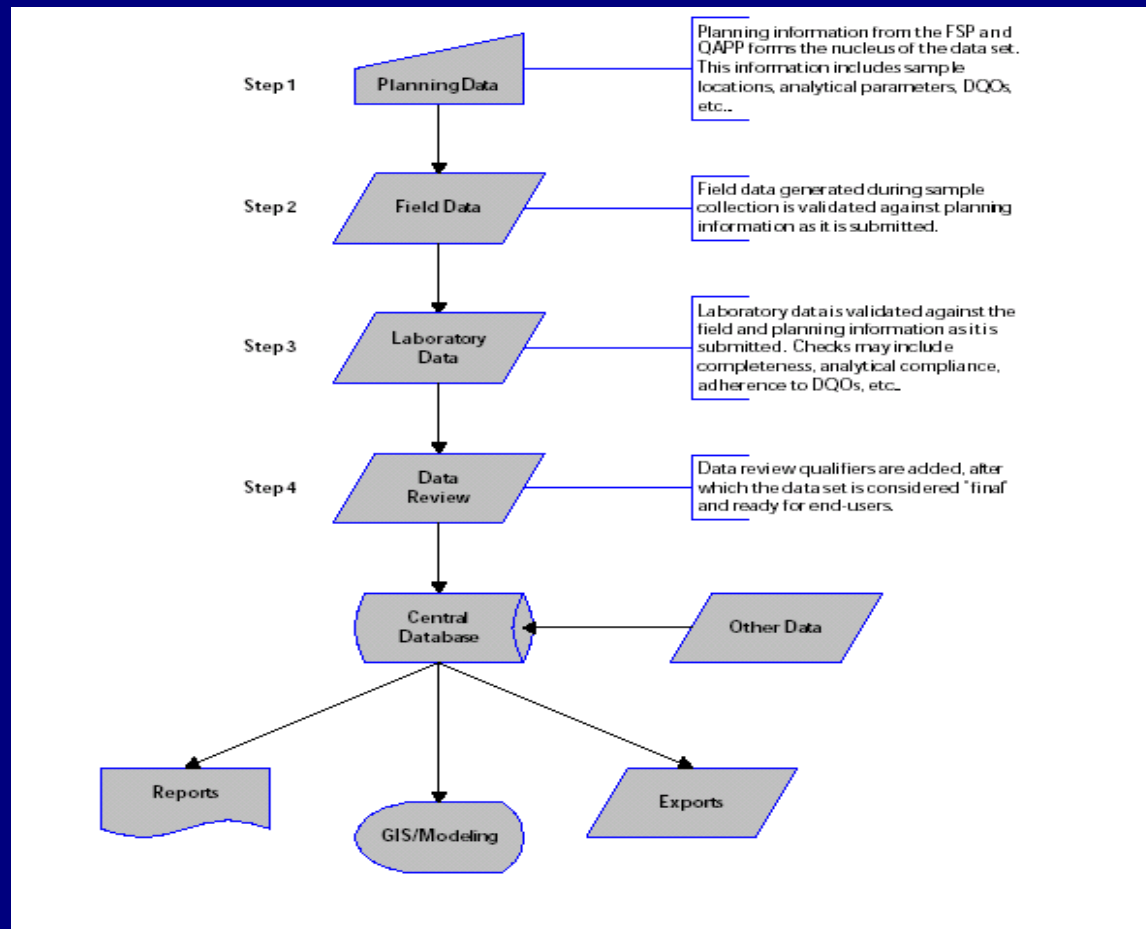


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Case Studies

FNOD, VA

- Sequential Data Submission Process





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Radford Army Ammunition Plant GIS (RFAAP)

- **NAB was tasked to take over and continue building the installation's GIS with one third of the original funding awarded to another agency**
- **First NAB project to implement Environmental Restoration Information System (ERIS)**
- **Also a pioneer for our in-house GIS**
 - ⇒ project team will present the outcome this week
 - ⇒ Will present at a RAB meeting in two weeks
- **One main objective was for NAB to have control of data (i.e., what flows in and out of the database)**



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What is ERIS

(Environmental Restoration Information System)

- **ERIS is the new environmental data repository for Department of Army**
- **It is mandated by Army (memorandum in 1998) that every Army installation will submit its environmental data (chemical, geologic and GIS data) to ERIS**
- **AEC has kept all data resided in IRDMIS and converted into ERIS**



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ERIS *(Environmental Restoration Information System)*

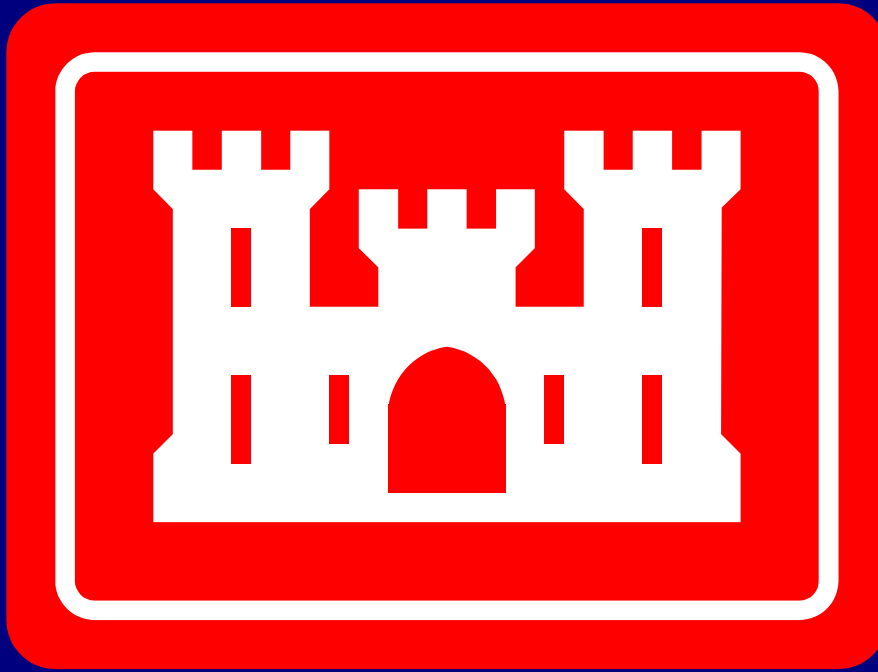
- **ERIS is a web based application**
- **New data can be uploaded from any analytical lab as long as the lab is a contractor of an Army installation**
- **Old data can be batch uploaded or keyed into the system if they are not presently stored in the system**
- **Data can be queried and downloaded based on the users' requirements**



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Conclusion

- **HTRW data management plays important role in making a project successful.**
- **By choosing the appropriate tools, complex environmental problems can be solved easily and efficiently**
- **A perfect application is non-existent to perform all tasks simultaneously but a combination of one or two powerful applications may be needed to do the job.**
- **Technologies are improving constantly; thus data users also must accept the changes and seek training to meet the challenges**



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